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Aug 20, 1992

DERWENT-ACC-NO: 1992-285395
DERWENT-WEEK: 199235
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TITLE: Implantable hearing aid with electromechanical transducer - has mechanical coupler linked to transducer oscillator by end away from inner tube

INVENTOR: HORTMANN, G; LEYSIEFFER, H ; BAUMANN, J

PATENT-ASSIGNEE:

ASSIGNEE

IMPLEX GMBH

IMPLEX SPEZIALHOERGERAETE GMBH

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CODE

IMPLN

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PRIORITY-DATA: 1991DE-4104358 (February 13, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>DE 4104358 A</u>	August 20, 1992		006	H04R025/02
<u>DE 4104358 C</u>	November 19, 1992		006	H04R025/02
DE 59200333 G	September 8, 1994		000	H04R025/02
EP 499940 A1	August 26, 1992	G	015	H04R025/02
EP 499940 B1	August 3, 1994	G	019	H04R025/02
US 5277694 A	January 11, 1994		013	H04R025/00

DESIGNATED-STATES: CH DE DK FR GB IT LI NL CH DE DK FR GB IT LI NL

CITED-DOCUMENTS: CH 627604; DE 3918086 ; DE 3940632

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 4104358A	February 13, 1991	1991DE-4104358	
DE 4104358C	February 13, 1991	1991DE-4104358	
DE 59200333G	February 10, 1992	1992DE-0500333	
DE 59200333G	February 10, 1992	1992EP-0102209	
DE 59200333G		EP 499940	Based on
EP 499940A1	February 10, 1992	1992EP-0102209	
EP 499940B1	February 10, 1992	1992EP-0102209	
US 5277694A	February 13, 1992	1992US-0834845	

INT-CL (IPC): A61F 11/00; H04R 25/02

ABSTRACTED-PUB-NO: DE 4104358A
BASIC-ABSTRACT:

The hearing aid stimulates the inner tube by an electromechanical transducer. A mechanical coupler is linked to the oscillating part of the transducer (11) by its side, away from the inner tube (17). Its other end protrudes into the liq. filled chambers of the inner tube through an artificial board by passing the auditory small bones.

The electromechanical transducer is of such design that it can be secured to the promontory. The linked coupler can be introduced through a bore in the promontory wall into the scala tympani. There are other ways of securing the e.m. transducer and the coupler may be in the form of a plunger, deformable along its longitudinal axis, but longitudinally rigid.

ADVANTAGE - Simple transducer system for stimulation of inner tube with good sound quality.

ABSTRACTED-PUB-NO:

EP 499940B

EQUIVALENT-ABSTRACTS:

Electromechanical transducer for implantable hearing aids for direct mechanical stimulation of the middle ear or the inner ear, characterised by a hermetically sealed and biocompatible housing (10), wherein one wall of the housing is designed as a membrane (11) which is capable of oscillation and which together with a piezoelectric ceramic disc (12) placed on the inside constitutes an electromechanically active heteromorphous composite element and the mechanical oscillations of which are transmitted via a mechanically rigid transmitting element (18) fixed securely on the outside of the membrane together with a mechanically rigid coupling element (28, 29, 39, 40, 42, 43) to an ossicle of the middle ear or directly to the inner ear.

US 5277694A

The electromechanical transducer is for implantable hearing aids for direct mechanical stimulation of the ear. A hermetically sealed and biocompatible housing has a housing wall that is formed of a membrane which, together with a piezoelectric ceramic disc that is attached on an inner side of the membrane. It forms an electromechanically active heteromorphous connecting element, with a mechanically rigid bow permanently attached on an outer side of the membrane, connected to a mechanically rigid coupling element which is adapted to be connected on one of a middle ear ossicle and inner ear of a user.

The bow acts for transmitting mechanical oscillations of the connecting element to the rigid coupling element. The mechanically rigid bow is attached at least approximately at a centre of the membrane.

ADVANTAGE - The application of the entire transducer system can be performed the operating surgeon having an unobstructed view, without extensive, space-creating interventions in the anatomical conditions of the middle ear.

DE 4104358C

The hearing aid has an electromechanical converter (11) and a coupling element (16) connected to the oscillating part of the latter with its side facing away from the inner ear, its other end projecting through an artificial bore by-passing the small bones of the ear into the inner space filled with fluid.

The coupling element is constructed as a mechanical member transmitting directly the mechanical oscillations of the converter to the inner ear.

ADVANTAGE - Definite improvement in quality of sound heard, using long life device.

CHOSEN-DRAWING: Dwg.1/4 Dwg.1/7 Dwg.1/8 Dwg.4/4

TITLE-TERMS: IMPLANT HEARING AID ELECTROMECHANICAL TRANSDUCER MECHANICAL COUPLE LINK
TRANSDUCER OSCILLATOR END INNER TUBE

DERWENT-CLASS: P32 S05 V06 W04

EPI-CODES: S05-F01; V06-E; V06-G; W04-Y02; W04-Y05C;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N1992-218408